Notice of Allowability	Application No.	Applicant(s)	
	10/723,762	SWANSON ET AL.	
	Examiner	Art Unit	
	Matthew J. Daniels	1732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *the 5 July 2007 Examiner's Amendment*.

2. ☒ The allowed claim(s) is/are *1-19*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

2. Authorization for this examiner's amendment was given in a telephone interview with Brian Morrison on 5 July 2007.

Claim 1: A method for three-dimensional modeling comprising the steps of heating a build chamber to an elevated temperature, dispensing modeling material from an outlet of a dispensing head onto a base provided in the build chamber, and moving the dispensing head and the base in three-dimensions with respect to one another in synchrony with the dispensing of modeling material so as to build up a three-dimensional object of predetermined shape on the base, characterized by:

maintaining physical and thermal separation between the heated build chamber and a gantry that controls motion of the dispensing head with at least a first deformable thermal insulator and a second deformable thermal insulator, wherein the first deformable thermal insulator and the second deformable thermal insulator form a portion of a ceiling of the build chamber and the first deformable thermal insulator and the second deformable thermal insulator comprise baffles;

compressing or expanding the first deformable thermal insulator when the dispensing head is moved in a first direction; and

compressing or expanding the second deformable thermal insulator when the dispensing head is moved in a second direction that is orthogonal to the first direction.

Claim 8: A method for three-dimensional modeling comprising the steps of:

heating a build chamber to an elevated temperature;

dispensing modeling material from an outlet of a dispensing head onto a base provided in the build chamber;

moving the dispensing head and the base in three-dimensions with respect to one another in synchrony with the dispensing of modeling material so as to build up a three-dimensional object of predetermined shape on the base;

controlling the motion of the dispensing head and the base with motion control components located external to the build chamber, the motion control components comprising at least one rail that defines an axis of movement for the dispensing head;

maintaining thermal isolation between the external motion control components and the build chamber with at least a first deformable thermal insulator and a second deformable thermal insulator, wherein the first deformable thermal insulator and the second deformable thermal insulator form a

portion of a ceiling of the build chamber and the first deformable thermal insulator and the second deformable thermal insulator comprise baffles;

compressing or expanding the first deformable thermal insulator when the dispensing head is moved in a first direction; and

compressing or expanding the second deformable thermal insulator when the dispensing head is moved in a second direction that is orthogonal to the first direction.

Claim 14: A method for three-dimensional modeling comprising the steps of:

heating a build chamber to an elevated temperature;

dispensing modeling material from an outlet of a dispensing head onto a base provided in the build chamber; and

moving the dispensing head and the base in three-dimensions with respect to one another in synchrony with the dispensing of modeling material so as to build up a three-dimensional object of predetermined shape on the base;

wherein the motion of the dispensing head and the base are controlled by motion control components, the motion control components being located external to and in thermal isolation from the build chamber by at least a first deformable thermal insulator and a second deformable thermal insulator, wherein the first deformable thermal insulator and the second deformable thermal insulator form a portion of a ceiling of the build chamber and the

first deformable thermal insulator and the second deformable thermal insulator comprise baffles; and

wherein the first deformable thermal insulator is compressed or expanded when the dispensing head is moved in a first direction, and wherein the second deformable thermal insulator is compressed or expanded when the dispensing head is moved in a second direction that is orthogonal to the first direction.

Claim 20 was deleted.

Allowable Subject Matter

3. Claims 1-19 are allowed.

4. The following is an examiner's statement of reasons for allowance:

The prior art does not teach or fairly suggest the subject matter of Claims 1, 8 and 14, as amended in this Examiner's amendment.

The closest prior art are the references to Gore (USPN 5257657), Penn (USPN 5260009), Tan (USPN 5142211), and Feenstra (High Temperature Fused Deposition Modelling: An Experimental Study Focusing on Modelling Materials).

Gore teaches that it is known to provide a heated build chamber, but does not teach or fairly suggest first and second deformable thermal insulators which form a portion of the ceiling of the build chamber, are comprised of baffles, and which are compressed or expanded when moved in first and second directions.

Penn teaches that it is known to provide a heated build chamber, but does not teach or fairly suggest first and second deformable thermal insulators comprised of baffles which form a portion of a ceiling of the build chamber, wherein the first deformable thermal insulator is compressed or expanded when the dispensing head moves in a first direction, and wherein the second deformable thermal insulator is compressed or expanded when the dispensing head is moved in a second direction orthogonal to the first.

Tan does not teach or fairly suggest a heated build chamber, dispensing modeling material, or first and second deformable thermal insulators comprised of baffles which form a portion of the ceiling of the build chamber. Applicants' remarks filed 15 August 2006 (page 7, beginning at line 4) indicate that the belts disclosed by Tan are not compressed or expanded during movement of the carriage subassembly.

Feenstra provides a heated build chamber (last page), with a ceiling, but there is no teaching or fair suggestion of first and second deformable thermal insulators comprised of baffles, wherein the first deformable thermal insulator is compressed or expanded when the dispensing head moves in a first direction, and wherein the second deformable thermal insulator is compressed or expanded when the dispensing head is moved in a second direction orthogonal to the first. Fig. 6 provides no teaching or fair suggestion of first and second deformable thermal insulators comprised of baffles.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J. Daniels whose telephone number is (571) 272-2450. The examiner can normally be reached on Monday - Friday, 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MJD

MJD 7/5/07

CHRISTINA JOHNSON
SUPERVISORY PATENT EXAMINER
7/5/07